

CLAIM AMENDMENTS

Please cancel claims 5 and 14.

Please amend the claims as set out below.

Claim 1 (currently amended): A computer operated encoding system for producing an electronic security device image from one or more electronic source images, said security device image being adaptable for printing onto a document to secure said document against data alteration, said system comprising:

- (a) deflection encoding means comprising means for applying a selected software lens to a first one of said source image images and producing a deflected image;
- (b) encryption encoding means comprising means for applying an encryption function to said deflected image or a second one of said source image images and producing an encrypted image;
- (c) means for overlaying said deflected and encrypted images to produce said security device image whereby neither of said first and second source images is visible upon viewing said security device image and wherein each of said deflected and encrypted images is preserved and identifiable by means of a predetermined feature such that either of said deflected and encrypted images may be decoded without interfering with an ability to separately decode the other of said deflected and encrypted images;
and producing therefrom said security image;

whereby wherein said deflected image is configured for detecting therefrom said first source image by decoding may be detected from said security device image both by means of: (i) a manual physical lenticular lens corresponding to said software lens being manually applied to a printing of said security image; and/or, (ii) by means of computer decoding processing applying said software lens to said deflected image, each said decoding means being selectable according to a user's choice without interference from any prior use of either or both said decoding means to detect said first source image and said encrypted image is configured for detecting therefrom either said deflected image or said second

source image may be detected from said security device image solely by means of computer decoding processing applying a decryption function corresponding to said encryption function to said encrypted image.

Claim 2 (currently amended): An encoding system according to claim 1 wherein said security device image includes a plurality of said deflected images, each said deflected image produced from one of said source images, said deflected images being interlaced to form an interlaced deflected image and said interlaced deflected image being overlaid with said encrypted image.

Claim 3 (original): An encoding system according to claim 1 wherein said software lens is selected from the group comprising line lenses, curved lenses and bitmap lenses.

Claim 4 (currently amended): A computer operated decoding system for detecting the presence of identifying one or more latent source images from within a security device image produced by an encoding system according to claim 1 whereby said security device image comprises said overlaid deflected and encrypted images comprising at least an encrypted image and a deflected image which are overlaid, said decoding system comprising:

- (a) image separation means configured for separating said overlaid encrypted and deflected images according to said predetermined feature to provide a first deflected image according to said overlaid deflected image and said encrypted image;
- (b) decryption decoding means comprising computer processing means for applying to said encrypted image the said decryption function corresponding to said encryption function used to produce said encrypted image and producing therefrom a decrypted image, said decrypted image being either a second deflected image according to said overlaid deflected image or said second source image corresponding either to one of said

- ~~source images or a deflected image; and,~~
- (c) deflection decoding means comprising computer processing means for applying to said first deflected image, or to said decrypted image if said decrypted image is said second deflected image corresponds to a deflected image, a software lens corresponding to said the software lens used to produce said overlaid deflected image, for aligning said software lens with said first deflected image, or said decrypted image, and for producing therefrom a defection decoded image from said applying; and,
- (d) output means for providing an output for use in characterizing said document as having been subject to data alteration or not,
wherein said characterization is based on a comparison of said decoded image to said first source image.

Claim 5 (cancelled).

Claim 6 (Currently amended). A decoding system according to claim 4 5 wherein said aligning means comprises evaluation means for evaluating whether said deflection decoded image corresponds to said first source image, wherein said evaluation means operates iteratively with said ~~deflection decoding applying~~ means to apply on each iteration either a different position of said software lens or other different lens parameter, until either said decoded image is determined to correspond to said first source image or all available lens positions and/or parameters have been applied.

Claim 7 (Currently amended). A decoding system according to claim 6 wherein said evaluation means uses a scoring algorithm to calculate a score based on pixel statistics calculated for each iteratively produced ~~deflection~~ decoded image.

Claim 8 (Currently amended). A decoding system according to claim 7 wherein said ~~deflection~~ decoded image is determined to correspond to said first source image

when a relatively large change occurs in said score from one said iteration to the next.

Claim 9 (Currently amended). A decoding system according to claim 8 wherein said output comprises ~~and further comprising means for outputting either said deflection~~ decoded image when it has been determined to correspond to said first source image or an error message if no such determination is made.

Claim 10 (Currently amended). An image encoding method for producing an electronic security device image from one or more electronic source images, ~~whereby said security device image~~ being adaptable ~~may be adapted for printing onto a document to secure said document against data alteration, said method comprising the steps:~~

- (a) applying a selected software lens to a first one of said source image ~~images~~ and thereby producing a deflected image;
 - (b) applying an encryption function to said deflected image or a second one of said source image ~~images~~ and thereby producing an encrypted image;
 - (c) overlaying said deflected and encrypted images and producing therefrom said security device image whereby neither of said first and second source images is visible upon viewing said security device image and wherein each of said deflected and encrypted images is preserved and identifiable by means of a predetermined feature such that either of said deflected and encrypted images may be decoded without interfering with an ability to separately decode the other of said deflected and encrypted images,
- whereby said deflected image is configured for detecting therefrom said first source image by decoding ~~may be detected from said security device image both by means of:~~ (i) a manual physical ~~lenticular lens~~ corresponding to said software lens being manually ~~applied to a printing of said security image;~~ and/or, (ii) ~~by means of computer decoding processing applying said software lens to said deflected image. each said decoding means being selectable according to a~~

user's choice without interference from any prior use of either or both said decoding means to detect said first source image and said encrypted image is configured for detecting therefrom either said deflected image or said second source image may be detected from said security device image solely by means of computer decoding processing applying a decryption function corresponding to said encryption function to said encrypted image.

Claim 11 (Currently amended). An encoding method according to claim 10 whereby a plurality of said deflected images are produced, each said deflected image produced from one of said source images, and interlaced to form an interlaced deflected image and said interlaced deflected image is overlaid with said encrypted image.

Claim 12 (Original). An encoding method according to claim 11 whereby said software lens is selected from the group comprising line lenses, curved lenses and bitmap lenses.

Claim 13 (Currently amended). An image decoding method for detecting the presence of identifying one or more latent source images from within a security device image produced by an encoding method according to claim 10 whereby said security device image comprises said overlaid deflected and encrypted images comprising at least an encrypted image and a deflected image which are overlaid, said decoding method comprising the steps:

- (a) separating said overlaid encrypted and deflected images according to said predetermined feature to provide a first deflected image according to said overlaid deflected image and said encrypted image;
- (b) applying to said encrypted image the said decryption function corresponding to the encryption function used to produce said encrypted image and producing therefrom a decrypted image, said decrypted image being either a second deflected image according to said overlaid deflected

- ~~image or said second source image corresponding either to one of said source images or a deflected image; and,~~
- (c) applying to said first deflected image, or to said decrypted image if said decrypted image is said second deflected image corresponds to a deflected image, a software lens corresponding to said the software lens used to produce said overlaid deflected image, and aligning said software lens with said first deflected image or said decrypted image, to produce and producing therefrom a deflection decoded image; and,
- (d) characterizing said document as having been subject to data alternation or not, wherein said characterization is based on a comparison of said decoded image to said first source image.

Claim 14 (Cancelled).

Claim 15 (Currently amended). A method according to claim ~~13~~ 14 ~~wherein said aligning step comprises iteratively producing a~~ and further including iteratively evaluating whether said deflection decoded image ~~using~~ corresponds to said first source image by applying on each iteration either a different position of said software lens or other different lens parameter, until either said deflection decoded image is determined to correspond to said first source image or all available lens positions and/or parameters have been applied.

Claim 16 (Currently amended). A method according to claim 15 wherein a scoring algorithm is applied to calculate a score based on pixel statistics calculated for each iteratively produced ~~deflection~~ decoded image.

Claim 17 (Currently amended). A method according to claim 16 whereby said ~~deflection~~ decoded image is determined to correspond to said first source image when a relatively large change occurs in said score from one said iteration to the next.

Claim 18 (Currently amended). A method according to claim 17 and further comprising the step of ~~outputting~~ either displaying said ~~deflection~~ decoded image when it has been determined to correspond to said first source image or providing an error message if no such determination is made.